

TITLE: TARGET UNIT FOR ELECTRONIC GUNS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to an improved structure of target unit for BB
5 electronic guns, and especially to a target unit for electronic guns with a virtual
effect of hitting of bullets through a target paper during shooting, and bullet hitting
can be detected by the sensitive target to show the results of scores on a display
screen, the bullets can be recovered into a collecting bin.

2. Description of the Prior Art

10 BB guns have been in the markets for a period of time, they are widely
accepted by consumers due to their safety, none limitation of playing area and effect
of reality of shooting. An early BB gun structure includes a three-dimensional
hollow network, the opening thereof can be inserted therein a target paper, a high
speed bullet can pierce the target paper in shooting. Scores of shooting can be
15 calculated from the numbers of hit holes and hit positions. Bullets can directly get
into the network for collection after piercing the target paper. Such structure needs
calculation by manual work for scoring, and on which overly concentration of hit
positions can make errors of scoring due to inability of distinguishing.

Relatively advanced structures include electronically sensing targets, some
20 with a remote control device. When in shooting, the scores can be dealt with by an
integrated circuit from the signals generated at the target and displayed on a display.

Such structures of electronically sensing targets is more convenient in scoring,
however, the shot bullets can not be collected for recovering, a cumbersome thing
results by the fact that the scattered bullets have to be picked up one by one after
25 shooting, and there is no sound effect of hitting of bullets in shooting, amusement of
shooting thereby is largely lowered.

In view of this, the inventor studied and developed the present invention after frequent experiments.

SUMMARY OF THE INVENTION

The primary object of the present invention is to provide an improved structure of target unit for electronic guns with a virtual effect of hitting bullets through a target paper during shooting, and the sensitive target can detect hitting of bullets to show the results of scores on a display screen, the bullets can be recovered into a collecting bin.

To achieve the above stated object, the present invention provides an improved structure of target unit for electronic guns comprising: a housing having a receiving area for movably mounting a target paper; a sensitive target provided in the housing in right opposition to the target paper and provided with a sensing circuit for sensing the electronic signals generated when in hitting of bullets; a scoring circuit connected with the sensing circuit for counting and provided with a display screen mounted on the housing to show the results of scores; and a recovering bin connected to the lower portion of the housing to collect and recover bullets.

The present invention will be apparent in its combination, operation and functions after reading the detailed description of the preferred embodiment thereof in reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an analytical perspective view of the present invention;

Fig. 2 is a plane view of the present invention after assembling;

Fig. 3 is a block diagram of the electric circuit in the present invention;

Fig. 4 is a schematic view showing operation of mounting the movable target paper in the present invention;

Fig. 5 is a schematic view showing application of the present invention;

Fig. 6 is a schematic view showing sensing of hitting of bullets;

Fig. 7 is a schematic view showing the appearance of another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring firstly to Figs. 1-7, the improved structure of target unit for electronic guns of the present invention is comprised mainly of: a housing 1, a sensitive target 2, a scoring circuit 3 and a recovering bin 4. Wherein:

the housing 1 has a receiving area 11 for movably mounting a target paper 12;

the sensitive target is provided in the housing in right opposition to the target paper 12 and is provided with a sensing circuit 21 for sensing the electronic signals generated when in hitting of bullets;

the scoring circuit 3 is connected with the sensing circuit 21 for counting and provided with a display screen 31 mounted on the housing 1 to show the results of scores; and

the recovering bin 4 is connected to the lower portion of the housing 1 to collect and recover bullets.

In practical application, the housing 1 is not limited to any shape, it can be round, triangle or rectangular. The housing 1 has an opening 13 at the position just ahead of the hitting area, and is pivotally connected with a liftable transparent framing cover 14. A bullet passage 15 integrally formed by enclosing of the wall of the housing 1 and the recovering bin 4 are located below the opening 13. A notch 41 is provided at a suitable position on the recovering bin 4 for movably inserting therein a drawer 42. The target paper 12 has a supporting paper frame 19 provided on the periphery thereof. The receiving area 11 on the housing 1 is slightly recessed to form a lower step 18.

The sensitive target 2 can be made of vibration absorbing material, the sensing

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circuit 21 can be formed by a conventional multiplayer printing method (not shown), or the sensitive target 2 can be provided thereon with a plurality of enclosing walls 22 with different diameters arranged in the form of triangles, squares, polygons or concentric circles (as depicted in the drawings). Each enclosing wall 22 is provided at a lowermost position on the periphery thereof with a hole 23 and a bullet passage 24 in the rear of the hole 23; each bullet passage 24 is provided therein with a photosensitive resistance 25 to form the sensing circuit 21 to separately sense the hitting bullet number in every enclosing wall 22.

Thereby, as shown in Figs. 2, 5 and 6, when the target is used, the transparent framing cover 14 can be lifted to insert a target paper 12 into the recessed receiving area 11, and then the framing cover 14 is closed again with the lower step 18 being its lower limit, thereby, the area to be hit is right in the opening 13 and the interior sensitive target 2. When in shooting, a virtual effect of piercing of bullets through the target paper 12 can be obtained, and the effect of amusement can be increased accordingly. And the hitting bullets can be absorbed by the sensitive target 2, and are limited to the scopes of the insides of the target paper 12 and the enclosing walls 22, the bullets can get through the hole 23 and the bullet passages 24 in the rear of the holes 23. The photosensitive resistance 25 senses which area among the enclosing walls 22 is hit and send a signal back to the scoring circuit 3 for accumulation, so that the display screen 31 can show the score sum. After sensing, the bullets drop naturally to pass through the bullet passage 15 and into the recovering bin 4, and are collected by the drawer 42 in the recovering bin 4 for recovering. The bullets can be tipped off again for using next time to thereby avoid the cumber of picking up all around.

And as shown in Figs. 1, 2, in practicing the present invention, the scoring circuit 3 is added with an acoustic electric circuit, a horn 33 is provided on the

housing 1 for making sounds when in hitting; thereby, when in hitting, music sounds or voices such as "you are good!" or voices such as "you miss!" etc. are given to increase fun of the game of shooting.

Referring to Fig. 7, the housing 1 of the present invention can be designed to omit the framing cover 14, instead, a plurality of "L" shaped rails 5 can be provided at both sides of the opening 13, so that the whole combination can be made with a less expensive die and material to thereby reduce the cost of production. The target paper 12 can still be inserted therein to get the same object of changing a target paper 12.

In conclusion, the present invention surely have the virtual effect of hitting of bullets through a target paper during shooting to increase the effect of amusement, and bullet hitting can be detected by the sensitive target to show the results of scores on the display screen, further, the bullets can be recovered into a collecting bin.

Having thus described the present invention with its industrial value, the above stated are only for illustrating a preferred embodiment of the present invention, it will be apparent to those skilled in this art that various modifications or changes can be made to the elements of the present invention, all such modifications and changes also fall within the scope of the appended claims and are intended to form part of this invention.